

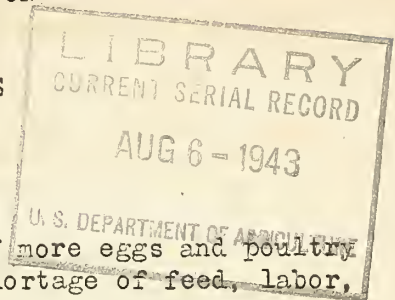
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UNITED STATES DEPARTMENT OF AGRICULTURE
 AGRICULTURAL RESEARCH ADMINISTRATION
 Bureau of Animal Industry

SELECTING U.S.R.O.P. CANDIDATES

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With the increasing need for the production of more eggs and poultry meat to help the war effort, and with the growing shortage of feed, labor, and equipment to sustain larger flocks, it is more important than ever to improve the efficiency of production. Improved breeding is one sure means of increasing efficiency. We need a greater number of strains that will produce 200 or more eggs on a hen-housed basis. Some U.S.R.O.P. breeders have already developed such strains. Other breeders of equal skill can do the same. The U.S.R.O.P. breeder is, therefore, in a key position to serve his country and his industry.

A six-pound layer of the American class, laying 200 eggs in one year, will eat about 103 pounds of feed. A hen of similar size laying only 113 eggs (the national average last year) will eat about 92 pounds of feed. The higher producing hen will provide 87 eggs more for the Food-for-Freedom program for only 11 pounds of additional feed.

The proper selection of pullets to be trap-nested is an important step in the poultry breeding program. Carefully selected nonpedigreed candidates may produce as well as pedigreed candidates. A good number may qualify as U.S. R.O.P. females, but the record of nonpedigreed candidates cannot be used in evaluating the breeding quality of their sires and dams. Therefore, it is of primary importance to trap-nest pedigreed candidates.

In selecting pedigreed pullets for U.S.R.O.P. candidates, first consideration should be given to having a representative sample for each promising family. By representative sample, we mean that the pullets entered as candidate should be representative of the daughters of the family for the performance factors that are to be measured by trap-nesting. Any culling for other factors that are directly correlated with the factors to be measured, of course, will affect the sample.

Although if poorly developed and diseased birds are culled before the sample is selected, the average performance of the family is materially affected, such culling usually is necessary from a practical standpoint. Notations regarding culling, deaths, and other observations should be made regarding each family and such information should be given due consideration in selecting the birds on a family basis. If diseased or poorly developed birds are trap-nested, the performance obtained is not representative of the genes that the birds may carry for egg production, egg size, etc.

Livability can be measured on pedigreed birds without trap-nesting. It is a simple matter to record the wing-band numbers of all birds that die. Breeders often use a board similar to a banding board, with a nail driven part-way in the board for each dam to provide a space for holding the wing bands from all dead birds. This can readily be done when the identification number of the wing band includes the dam's number. Freedom from broodiness is another factor that can be measured without the use of the trap nest. Other factors

that can be measured less accurately are sexual maturity and persistency.

Eight or more representative daughters should be entered as candidates from each dam. If a dam has less than five daughters or if her chicks failed to hatch, grow, feather, and live satisfactorily, it is questionable if there is any value to entering her daughters as candidates.

The main need of trap-nesting pullets is to measure rate of production, pause, and the quality of the eggs produced by a family. The daughters entered should be a representative sample for measuring these factors. (Any effort of the breeder to increase his qualifying percentage at the expense of his breeding program for advertising purposes will ultimately work to his detriment.) If the late-maturing daughters are not entered, the family averages will be inaccurate, since there is a significant negative correlation between sexual maturity and annual egg production. There is also a high correlation between the weight of the first few eggs laid by a pullet and her annual average egg weight, so if some of the daughters are rejected because of low egg weight, the family average is affected. The candidates may be culled for such factors as side sprigs, stubs, and variation in plumage color that are in no way correlated with the major factors without affecting the accuracy of the sample. The reason for any culling should be clearly recorded on the family record. Eliminating one or two birds for side sprigs will not affect the sample in measuring rate of production, but it is important to have a record of the fact that side sprigs occurred in the family.

The number of pullets that a breeder should officially trap-nest depends upon several factors, some of which are as follow:

- (1) Number of good pedigreed pullets on hand
- (2) Housing and trap-nesting facilities
- (3) Available labor
- (4) Number of sires to be family tested
- (5) Number of dams to be family tested
- (6) Size of family considered significant

At least 8 single-male matings are desirable and the majority of the males should have a sufficient number of daughters to enter as candidates. Forty daughters from each sire and 8 daughters from each dam are satisfactory numbers to use. If a breeder has 8 sires, 5 or more of them should have 40 or more daughters from dams that also had satisfactory progeny test records for hatchability, livability, rate of feathering, rate of growth, family size, etc. This would give 200 or more desirable U.S.R.O.P. candidates. However, it is to be questioned whether the minimum number of candidates should not be considerably more than 200. Since the trap-nest pens must be visited every two or three hours anyway, it would not take much more labor to trap 400 than 200.

The daughters entered from a sire should be from dams that represent several families. This gives a more reliable measure for comparing the progeny -test records of the sires. Five dams, no more closely related than first cousins, should be a satisfactory number to select daughters from a progeny -test record of the sire. Of course, more information would be obtained if all pedigreed daughters were entered as candidates. Such additional information may not be of sufficient value to compensate for the labor and, in some

cases, may give results that would be misleading to the breeder. For example, if an individual from a poor or small family makes a very high record, the tendency is to use her as a breeder.

Summary and conclusions:

- (1) Trap-nest officially at least 40 daughters from each sire representing five or more of his mates.
- (2) Trap-nest at least 8 daughters from each dam. If a dam does not have 8 daughters, due to excessive U.S.R.O.P. sales, the number may be safely reduced to 5.
- (3) Trap-nest all daughters from progeny-tested sires and dams that have proved their breeding value.
- (4) Officially enter a representative sample for the factors to be measured by trap-nesting. Culling for late sexual maturity, slow rate of production, poor egg quality, etc., should be kept at a minimum and considered in the future rating of families.
- (5) Trap-nesting is not necessary to measure livability - merely keep a record of the birds that die.
- (6) Officially enter only birds that are representative of the breed and variety and free from standard disqualifications.
- (7) Make a record of the reason every pedigreed bird was rejected and give each notation due consideration in summarizing the sib and progeny test record for each family.

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